

INCREASED RISKS**

- Drinking and driving is the number one killer of Americans between the ages of 17 – 24.
- In the U.S., 70 people are killed daily in drunk driving accidents, that is roughly one person killed every 22 minutes.
- According to the Center for Disease Control, 25% - 50% of all drownings are alcohol related.
- One in every three suicides involves alcohol.
- 75% of men and 50% of women involved in sexual assaults had been drinking prior to the assault.
- 54% of alcoholics have an alcoholic parent.
- Pregnant women who drink risk having babies with fetal alcohol syndrome.
- Women absorb alcohol into the bloodstream faster and metabolize it slower than men.
- Alcohol does not relieve depression – it makes it worse.
- A daily glass of wine will add 10 pounds per year.
- The peak Blood Alcohol Level occurs 60 to 90 minutes after ingestion when the stomach is empty.
- Alcohol is probably the most widely abused drug in Montana and the U.S.

** Source: Iowa State Fact Sheet

BAC

Blood Alcohol Concentration



AND YOU

Prepared By:
**MONTANA STATE HIGHWAY
TRAFFIC SAFETY OFFICE
DEPARTMENT OF TRANSPORTATION**
406-444-7411
Fax: 406-444-9409



WHAT IS BAC?

When a person consumes an alcoholic beverage, the alcohol is quickly and directly absorbed into the bloodstream without being digested, and then distributed to the body cells. As more is taken in, the percentage of alcohol in the blood rises. This alcohol in the blood is called the blood alcohol concentration or BAC. The BAC can be measured accurately by using a breath, urine or blood sample. This measurement indicates parts of alcohol in relation to parts of blood. In Montana it is unlawful for a person 21 years of age or older to drive or be in actual physical control of a motor vehicle when the BAC level is .08% or more.

IT IS UNLAWFUL FOR A PERSON UNDER THE AGE OF 21, WHO HAS AN ALCOHOL CONCENTRATION OF .02% OR MORE, TO DRIVE OR BE IN ACTUAL PHYSICAL CONTROL OF A VEHICLE UPON THE WAYS OF THIS STATE OPEN TO THE PUBLIC.

WHAT DETERMINES BAC?

The percentage of alcohol in the blood depends basically on three things:

1. **Body Weight:** A heavier person has more body fluids; therefore can consume more alcohol than a lighter person, and still have the same percentage of alcohol in the blood.
2. **Amount of Alcohol Consumed:** "Standard" drinks all contain the **same amount of alcohol**. A "standard" drink is a 12 ounce can or bottle of beer, a 5 ounce glass of most wines and 1½ ounces (1 shot) of liquor. Beer has 5% alcohol, most wines have 12%, and 80 proof liquor has 40%. Multiply the volume of the drink by the percentage of alcohol in each, and your answer is the amount of alcohol your body is taking in. In these "standard" drinks, each contains .60 ounces of alcohol.
3. **Drinking Time:** The more drinks consumed in a shorter period of time, the higher the BAC. Three drinks in one hour will cause a higher BAC than one drink each hour for three hours.

Eating before or while drinking tends to slow the absorption rate of the alcohol into the bloodstream, but eventually all of the alcohol consumed gets into the blood.

HOW DOES BAC AFFECT BEHAVIOR?

When the alcohol in the bloodstream reaches the brain, it immediately begins to affect the way a person behaves. The effects are present with just one drink. The following BAC levels are based on a 140 pound person who has consumed the alcohol over a short period of time (1-2 hours)

1-2 drinks (.01 to .04 BAC) Affected first are the outer layers of the cerebrum, (area #1 on the following picture) which contains the centers of association of the brain, e.g. judgment, reason and inhibitions.

3-4 drinks (.05 to .08 BAC) The alcohol now reaches further into the cerebrum, (area #1 on the following picture). At this point higher motor and sensory areas are affected, causing a decrease in fine skills and a person's ability to respond and perform. People are likely to become noisy, more talkative and moody, but feel more alert and capable. Yet in truth, there has been a reduction in their reaction time, judgment, and ability to respond to emergencies.

5-7 drinks (.09 to .15 BAC) Now the alcohol extends into the cerebellum, (area #2 on the following picture) the essential link in coordinating sensory impulses and motor activity. The drinkers' senses of hearing, speech, vision and balance are altered. Decreased sense of pain, staggered walk, and slurred speech may also be evident.

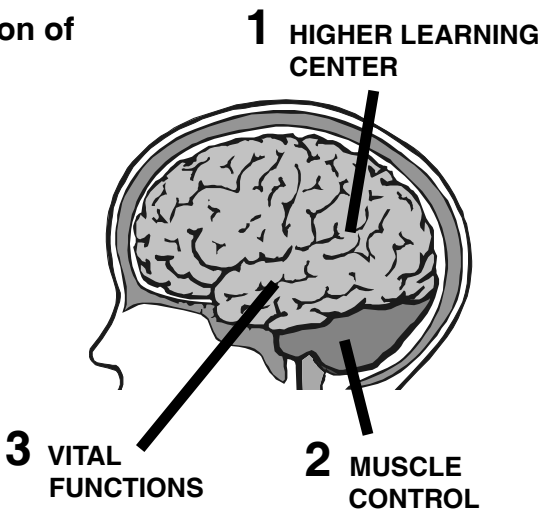


8-12 drinks (.16 to .30 BAC) The entire cerebellum, as well as portions of the medulla (area #3 on the following picture), which controls involuntary functions, may be affected. Reflexes are depressed, body temperature may go down and circulation is impaired. Unconsciousness may occur. Gross intoxication of all physical and mental faculties is evident.

More than 12 drinks (.30 and above) By this time most people are not in a position to drink anymore. They are usually unconscious and will remain in a coma until the body has disposed of the enough alcohol so that the nerve centers controlling consciousness may begin to function again. It is important to note that persons in this condition are near the point of death and **may** die if left unattended.

ALCOHOL AND YOUR BRAIN

Progression of Alcohol's Sedative Effects



THREE STEPS OF DRINKING**

ABSORBING

Once alcohol is swallowed, it is not digested like food. Instead, a small amount is absorbed directly by the mucosal lining of the mouth. Once in the stomach, alcohol is absorbed directly into your blood stream through the tissue lining the stomach and small intestine. Food, water and fruit juice help to slow this absorption, while carbonation works to speed absorption.

TRANSPORTING

Once alcohol is in your blood stream, it is carried to all the organs of your body. In the majority of healthy people, blood circulates through the body in 90 seconds, thereby allowing alcohol to affect your brain and all other organs in 90 seconds. The affects of alcohol on the body will vary according to the individual; their sex, their body make-up, the amount and type of alcohol consumed, the situation, and the presence of food in the stomach.

CHANGING

Alcohol is a drug that must be changed into a non-harmful substance. Ten percent of the alcohol is eliminated through sweat, breath and urine. Your liver must detoxify the remaining alcohol. The liver detoxifies, or breaks down, alcohol at a rate of one half an ounce per hour. However, some people cannot detoxify that much alcohol in an hour. Nothing will speed this rate. When the rate of alcohol consumed exceeds the liver's detoxification rate, the amount of alcohol in the bloodstream continues to increase, further impairing the brain, causing intoxication, coma or possibly death.

** Source: Iowa State Fact Sheet

BAC ELIMINATION

It takes 20 to 40 minutes after a drink has been consumed for all of the alcohol to be absorbed into the body. Because of this, when you stop drinking, your BAC will continue to rise for a period of time.

An average person's body will eliminate alcohol at the rate of .015% BAC per hour. This is done through breathing, sweating and through the liver. However, the liver must handle 90% of the alcohol elimination, and the liver never changes speed, so the rate of elimination remains constant. As a result of this slow elimination process, a person remains intoxicated and/or impaired for an extended period of time.

When the BAC level has reached its highest point and starts to decline, people perceive themselves as being more sober than they really are. They use their highest BAC level as their reference point—not when they were sober. BE CAREFUL!

BAC AND DRIVING

If you drink and drive you automatically increase the risk of becoming involved in an accident. The more you drink, the greater the risk becomes. Certain standards have been adopted to identify drinking drivers. They are:

.01 to .04% BAC	A driver is affected . Chances of an accident increase.
.04 to .07% BAC	A driver is impaired . Chances of an accident double. At this BAC level the driver could be arrested for DUI.
.08% BAC	A driver is intoxicated . Chances of an accident are 6 times greater. Driver is also considered under the influence of alcohol.
.15% BAC	Chances of an accident are 25 times greater than when sober.

In one-half of all highway fatalities, alcohol is involved. In alcohol-related crashes, about one-half of those killed are not the ones who had been drinking.

YOU COULD BE CONVICTED OF DUI

A person convicted of driving or being in actual physical control of a motor vehicle upon the ways of this state while under the influence of alcohol or other drugs shall be punished as follows:

- You will be fined
- You will be imprisoned
- You will be required to attend an alcohol information and/or treatment program
- You could lose your driver's license
- You will pay a \$200.00 driver's license reinstatement fee
- Your vehicle could be seized or equipped with ignition interlock
- For more information see MCA 61-8-714 & 61-8-731

YOU COULD BE CONVICTED OF MIP

- You will be fined
- You will perform hours of community service
- You and your parent(s)/guardian will pay for information course (under 18 includes parent(s)/guardian)
- You could lose your driver's license
- You could be imprisoned
- You will pay a \$200.00 driver's license reinstatement fee
- For more information see MCA 45-5-624

BAC and ACCIDENTS

